



# BIG SUR

## Coast Highway Management Plan

This newsletter is the second in a series to help you stay informed and be involved in developing the Big Sur Coast Highway Management Plan.

### STEERING COMMITTEE

Association of Monterey Bay  
Area Governments  
Big Sur Chamber of Commerce  
Big Sur Land Use Advisory Committee  
Big Sur Multi-Agency Advisory Council  
CA Coastal Commission  
CA Department of Parks &  
Recreation  
CA State Assembly, 27th District  
(Keeley)  
CA State Senate, 15th District  
(McPherson)  
CA Department of Transportation  
Coast Property Owners Association  
Coast Watch  
Federal Highway Administration  
Monterey Bay National Marine  
Sanctuary  
Monterey County Planning and Building  
Monterey County, District 5 (Potter)  
Monterey County Travel & Tourism  
Alliance  
South Coast Advisory Committee  
US Congress, 17th District (Farr)  
US Forest Service

### WORKING GROUPS

Storm Damage Response and Repair  
Maintenance Practices  
Scenic and Habitat Conservation  
Public Access and Recreation  
Plan Implementation



*This view to Pt. Sur is one of the most dramatic, intact stretches of the coast highway, where land meets sea, with relatively little human intrusion.*

## A Management Plan Begins to Emerge

Keeping the primary coastal route open between the Monterey Peninsula south into San Luis Obispo County while preserving the natural essence of the coast is a primary aim of the Big Sur Coast Highway Management Plan (CHMP).

A focused effort to develop the Big Sur CHMP was initiated in 1998, after El Niño storms caused considerable damage and closed portions of the roadway for 3-1/2 months. The plan will provide the framework for coordinated management of Highway 1 that preserves and restores the unique qualities along the 75-mile corridor. The corridor inventory identified natural, scenic, historical, archaeological, cultural, and recreational qualities of the area and is the first major milestone. The California Department of Transportation (Caltrans)—planning team has begun work on the second milestone—proposing management strategies. The team has developed preliminary principles corresponding to the four issue areas identified early in the

planning process. These principles will guide the evolution of specific management strategies.

Principle: A comprehensive and fundamental law and/or a code of conduct.

Specific management strategies will be developed from the principles and will guide the actions of the various organizations involved in managing the highway. The preliminary set of principles being reviewed by the working groups and Steering Committee include:

### Storm Damage Response and Repair

- Respect travelers' needs for timely and accurate information on highway conditions
- Act quickly and responsibly to restore highway access
- Promote interagency solutions to prevent, anticipate, and respond to storm events
- Pursue low impact solutions that respect natural processes

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### Scenic and Habitat Conservation

- Respect diversity, individuality, and character of place
- Minimize visibility of human activity
- Protect and restore corridor natural, scenic, and cultural resources
- Pursue coordinated multi-party solutions to achieve success

### Maintenance Practices

- Conduct maintenance activities in a manner that sustains the corridor's intrinsic qualities
- Protect the public investment in the highway
- Ensure the functional integrity and safety of Highway 1 for the traveling public
- Continually strive to identify and apply the best available maintenance techniques

### Public Access and Recreation

- Support communication of essential traveler information
- Pursue a non-motorized public access system that balances recreational opportunities with protection of sensitive resources, private properties and community values
- Support the recreational value of driving Highway 1
- Be guided by the Big Sur Coast's capacity to educate and inspire

Distinction will be made between management strategies that can be set in motion in the short term versus those that require further development beyond the current planning effort. Strategies ratified by the Steering Committee will map out a plan of action, document and implement best management practices for coordinating highway activities that best serve the traveler and preserve the landscape.

**Caltrans is collecting an inventory of over 700 culverts along the highway, updating detailed information on size, type, condition, and the expected remaining service life of each culvert.**



*A culvert riser and inlet at Double Gulch. Perforations in the metal pipe allow water to flow down the riser and into the culvert, bypassing the culvert inlet should it become plugged.*

## Managing Drainageways Along Highway 1

How does the water cross the road? As it does almost anywhere else, along Highway 1 it crosses beneath bridges or through pipes located underneath the road, known as culverts. This area along the Big Sur Coast receives 30 to 60 inches of rain per year; the surface runoff is carried under one of the highway's 40 bridges and through 700 culverts. The two main causes of roadway failures on Highway 1 are washouts and landslides; washouts result from obstructions of the passage ways beneath the road. Directing water properly is one of the greatest challenges in maintaining the highway.

Culverts carry more than just water. In storm events, erosive action from heavy rain also brings down soil and debris. With long or intense storms, massive amounts of debris can block culvert inlets. Once they become plugged, subsequent flows build up behind the highway embankment. At this point, remedial work to clear the opening and restore the flow beneath the road is nearly impossible until the storm subsides. If debris build-up continues to the point of reaching roadway level, the muddy water will begin to flow over the road and down the embankment. It is this waterfall action which begins to eat away at the embankment on the other side of the road, eventually causing the roadway to collapse. Taking prudent preventive action to avoid this scenario is a high priority.

There are proactive solutions to help prevent this type of failure. Regular maintenance keeps inlets clear of debris; in vulnerable drainages, debris barriers such as risers may be installed to decrease risks of roadway overtopping. Existing challenges include a lack of influence over upstream activities in the watersheds, the visual impacts of debris barriers, and possible drainage impacts at the outlet. The Big Sur CHMP will include best management practices for drainageways.

Caltrans is collecting an inventory of each of the culverts along the highway, updating detailed information on size, type, condition, and the expected remaining service life of each culvert. Knowing the number, age and condition of the existing culverts is important for developing best management practices. The inventory will be part of a Geographic Information System database that will assist crews in locating the culvert inlets buried by storm events, aiding in a more rapid response to restore or prevent loss of the highway.

Managing water flow across and under the roadway is critical for basic maintenance on Highway 1. Maintaining culverts in good working condition and making it possible to better respond to difficult circumstances created by large storm events is critical. The strategies that will be outlined in the Big Sur CHMP will help improve interagency coordination and support a program for sound, functioning drainages by enabling work and repairs to proceed smoothly.

Big Sur CHMP Initiated

Corridor Inventory  
CompleteManagement Strategies  
ProposedDraft Big Sur CHMP &  
Preliminary Environmental  
ReviewSteering Committee  
Ratifies Big Sur CHMP

## Living with Landslides

When we picture the Big Sur Coast, we see rolling hills, steep cliffs, crashing waves, and amazing views. A closer look at these features reveals clues about the geologic origins of this landscape that continues to transform before our eyes. Evidence of the changes is the landsliding that occurs regularly on this stretch of coast in variable shapes, sizes and conditions. Geologists characterize this as an emergent coast where the mountains rise steeply out of the sea and receive the brunt of Pacific storms, which in turn erode the slopes. The heavily fractured soils found along the southern part of the Big Sur Coast also contribute to instabilities evident from the highway.

Usually triggered by water or undermining, landslides vary from small occasional "pop-outs" to chronic rockfalls, and from large masses of material creeping slowly over many years to catastrophic movements occurring suddenly and unexpectedly. For the people depending on Highway 1 for transportation, landslides can be very disruptive; visitors, residents and businesses can easily become isolated when there is a complete closure on the highway. No suitable detours of Highway 1 exist along the length of the Big Sur Coast and the

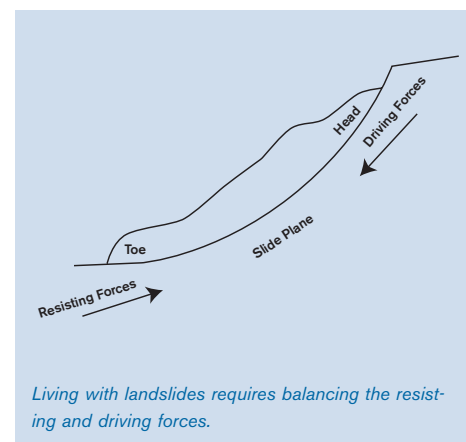


*Aerial view of large landslide on the coast.*

east/west routes of Highways 68 and 46 are separated by over 100 miles. Highway 1 fills basic needs for emergency services, access to homes, schools and businesses. When a closure occurs, restoring travel along the highway becomes the highest priority for Caltrans and work to repair the roadway begins as soon as possible.

What might be less evident to the casual observer than the landslides themselves is the change in construction practices and techniques to repair the failures. Emphasis is shifting from fixing landslides to living with landslides. In the era of grand engineering projects, equipment and repair techniques were bold and aggressive. Today, in an effort to reduce overall impacts from repairs and restore travel quickly, less-elaborate approaches are being promoted.

Aggressive techniques would seek long-term global and local stability of a landslide (such as completely removing a landslide through excavation); newer techniques still seek global stability, but may compromise local stability somewhat. What this means is that various techniques are combined to try to balance the forces, manage site conditions and provide reasonable overall stability, but with a tradeoff for periodic localized failures. Positive measures taken to offset this include frequent inspections, storm patrols, rock scaling, and sometimes temporary road closures during intense storms. This might be seen as an inconvenience to the traveler, but the net difference is fewer overall impacts from repairs. Management techniques range from dewatering slopes and controlling the runoff (Duckponds landslide), to constructing buttressing walls (Gorda landslide), to slope excavation which incorporate room for rock catchment (Hurricane Point landslide).



*Living with landslides requires balancing the resisting and driving forces.*

This transition in approach is best illustrated over two recent El Niño storm periods. After the storms of 1983, highway repair from one large landslide at Julia Pfeiffer-Burns (also known as the McWay landslide) resulted in the removal of 3.1 million cubic meters of earth and a one-year road closure. It should be noted that 2.3 million cubic meters of earth moved during the landslide. The stabilization strategy used to repair resulted in excavating 150% of what was naturally displaced. By contrast, after the storms of 1998, highway repairs from

### WHAT PEOPLE ARE TELLING US!

**In response to the first newsletter, here is some of what we have heard so far:**

"I have been living on the coast for 33 years, I think opposite the rainy season Caltrans and other independents should attack trouble spots... then maybe the highway would not fall out or down as badly."

"Why are bikes allowed on Highway 1 where there are not bike lanes or room for lanes on many sections of the road?"

"I drive down Highway 1 every day and live in Big Sur. I've seen more Caltrans work this year than ever. I like it. Keep up the good work."

**Some general comments we received from a questionnaire about the scenic qualities:**

"It [coast highway] feeds me, and all who drive it, a sense of the larger reality of nature and earth. An elemental corridor where nature rules—from the road you see the curvature of the earth."

"It is almost a spiritual thing to take this stretch [of the coast highway]. It is rare in this world—I recommend it to out-of-staters."

"Beauty and healing. A dear friend passed away unexpectedly. I drove here today, had lunch, drove back home. The beauty was comforting."

four large landslides resulted in the removal of only 700,000 cubic meters of earth and a three and a half month road closure. Material naturally displaced from these four landslides was nearly 3 million cubic meters, however, only a fraction (about 25%) of this material was actually removed for highway repair.

Even with the evolution in repair techniques, excess earthen material is still generated and needs to be removed from the immediate construction site. This need continues to create a challenge for Caltrans operations along the coast. In most cases, the single most important factor influencing the time to reopen the road is directly related to the pace at which material can be handled and removed from the site during a repair.

Subject to continuing debate is the question about potential impacts from the disposal of excess material. While impacts to upland habitats may be better understood, impacts to the marine environment are not as well understood. Achieving consensus among diverse stakeholders on an integrated approach to this problem is one of the expected outcomes of the Big Sur CHMP.

While discussions and research continue on this subject, Caltrans is seeking Coastal Development Permits on four upland disposal sites along the Big Sur Coast for use in response to storm damage events. Combined, the four sites provide relatively little capacity compared to the potential need. Even with changes in repair techniques to reduce overall quantities of excess material, the four proposed sites would be filled twice over by another event the magnitude of 1998. Clearly, more solutions are needed to be adequately prepared for annual winter landsliding and particularly for cyclical El Niño events.

One of our objectives with this newsletter is to receive input from you. What kind of innovative solutions might you propose to solve this dilemma? Please fill out the comment card with this newsletter and mail it to us, or visit our web site at [www.dot.ca.gov/dist05/projects/bigsur](http://www.dot.ca.gov/dist05/projects/bigsur) to send an e-mail.

  
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# BIG SUR Coast Highway Management Plan

## COMMENT CARD

We need your ideas! Please write us if you have any comments in general about the Big Sur Coast Highway Management Plan (CHMP). We also need your ideas on creative solutions for excess landslide materials.

Please note comments to the right.

## CONTACT INFORMATION

Name

Address

Phone

Fax

Email

## CREATING A BYWAY ORGANIZATION

Highway 1 received "All American Road" designation in 1996, honoring the epic qualities of the Big Sur Coast. In order to receive this designation, a management plan was required. The Local Coastal Program, from Monterey County, with its strong viewshed protection policies, provided the basis for the current corridor management plan. In 1998, there was still concern that ongoing activities could be a threat to the natural beauty within the corridor. This anxiety during large storm events that year, spurred the development of the Big Sur CHMP.

The Steering Committee for the Big Sur CHMP is exploring the development of a lasting organization that would transcend the current planning effort to ensure its longevity and success. While Caltrans has initiated the effort to update the existing corridor management plan, the solutions to sound management must be achieved collectively to recognize and respect diverse interests. It would not be possible for one organization to single-handedly change basic management practices without the assistance or cooperation of others. Because many regulatory agencies are involved in decision-making, implementation of the Big Sur CHMP will be relatively complex. Forming a byway organization may be the solution to ensuring sound implementation of the Big Sur CHMP, sustaining its function, and raising and managing funds to support highway enhancement projects.

Two important elements for consideration in creating an effective organization are identifying a lead organization and developing a mechanism for handling disputes. Possible organizational structures include:

- **Joint Powers Board**—exclusive to governmental agencies, can hire staff and enter into contracts, able to make decisions across multiple jurisdictions quickly
- **Interagency Agreement**—combination of agencies, cannot hire staff except through member agency, good for groups in beginning stage of formation
- **Non-Profit Organization**—funding sources include grants, contributions, and contracts, tax exempt in many cases, can hire staff, all activities must match charter and bylaws
- **Citizen Group with Outside Fiscal Agent**—simple to create, members set direction and activities, but can experience a lack of clarity in decision making/authority, cannot hire staff, has ability to move quickly
- **Hybrids**—combinations of the above, such as a Non-profit with interagency agreements, Non-profit with non-binding advisory board(s), Joint Powers Board with non-binding Citizen Advisory Board.

The Plan Implementation Working Group is evaluating the option possibilities and will make a recommendation to the Steering Committee about the structure and function of a byway organization.

## HOW TO BE INVOLVED

Visit the Highway 1 – Big Sur CHMP project site at [www.dot.ca.gov/dist05/projects/bigsur](http://www.dot.ca.gov/dist05/projects/bigsur)

Read project information materials (available on web site)

- Corridor Inventory reports and other related studies

To request a presentation on Big Sur CHMP activities contact Aileen Loe at the number below

Questions? Caltrans questions from Monterey and Santa Cruz Counties call (831) 423-0396

Big Sur CHMP questions, please call Aileen Loe at (805) 549-3103 or email [Hwy1\\_BigSur@dot.ca.gov](mailto:Hwy1_BigSur@dot.ca.gov)



*The Big Creek Bridge typifies engineering achievements of the early part of this century and provides a unique historical architectural scenic quality that has become associated with the Big Sur coast.*



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## How I See It!

### STAKEHOLDER INTERVIEW

**Taro Echiburu, Associate Planner, Monterey County Planning and Building Department**

Taro Echiburu moved from Chile to Monterey County seven years ago. After arriving in the United States, he went on to earn a degree in Environmental Policy and then on to work as an analyst with the California Coastal Commission. His position there connected him to the Big Sur CHMP planning effort. Recently Taro accepted a job with Monterey County and now helps to oversee the permitting process and agency coordination (a key component of the Big Sur CHMP). Based on his past experience, it seemed natural for him to act as Monterey County's liaison within the Big Sur CHMP process. We asked him how he thought the plan would improve the preservation and maintenance of Highway 1.

"The Big Sur CHMP is a way to ensure that repair and maintenance activities along the corridor are consistent with Monterey County's certified Local Coastal Program through coordination of agencies, resources, and policy review, which is much more effective than working with isolated projects." The Local Coastal Program is a set of County policies, certified by the CA Coastal Commission, that guide development along the corridor and is consistent with the CA Coastal Act. "The Big Sur CHMP allows issues to be brought to the table, enabling regulatory agencies, non-governmental organizations, and the community to develop best management strategies."

Taro added that the Big Sur CHMP, by streamlining the permitting process, will accomplish Local Coastal Program and other regulatory agency goals more efficiently, while preserving the road as a scenic resource. "Incorporating all stakeholders' concerns in the document will be a real challenge, as they cannot be addressed in one uniform way. Only through facilitated discussion can these concerns be addressed. The Big Sur CHMP provides a forum for this to happen."

